THE

ADVISORY DEPARTMENT

IMPERIAL COLLEGE OF TROPICAL AGRICULTURE.

IMPERIAL MYCOLOGICAL
16 OCT 1933
INSTITUTE

REPORT

ON THE

Agricultural Department

ST. KITTS-NEVIS

1932.

ISSUED BY THE COMMISSIONER OF AGRICULTURE

FOR THE WEST INDIES.

1933.

[Price Sixpence.]

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Letter of Transmittal.

C.A. 740. 30th May, 1933.

Sir,

I have the honour to transmit the Report of the Agricultural Department, St. Kitts-Nevis for the year, 1932.

2. The St. Kitts sugar crop for the year 1932 was the largest on record amounting to 19,969 tons. As is shown by the graphic record included in this report there is a very close correlation between rainfall and crops of sugar. When the rainfall is sufficient the crops are large indicating that the fertility of the soil is being well maintained on most estates.

3. The action of the only sugar factory operating in the Island in paying a minimum price of 14/- per ton of cane has been of great assistance to the growers and of equal importance to the factory itself in securing adequate supplies of cane. The planters by growing varieties of cane that yield maximum returns of sucrose have made it possible for the factory to pay more for the cane than was the case when inferior varieties were grown and at the same time assured for the factory shareholders generous returns on the capital outlay.

4. With the appointment of an Assistant to the Agricultural Superintendent it has been possible to enlarge on the investigation work carried on by the Department and the results of these investigations are presented in this Report. They should be carefully studied by the growers. Manurial, varietal, and spacing experiments are recorded. These experiments have been carefully planned and the results subjected to statistical examination. In order to secure continuity and the extension of this work and to ensure the continued co-operation and interest of the planters and the factory, proposals have recently been put forward for the formation of a Sugar Cane Investigation Committee.

5. The value of 460,000 gallons of molasses is given as £1,200. At this extremely low figure the question of utilizing this by-product as a manure requires investigating.

6. The Sea Island Cotton Industry has fallen on bad times and the production has declined from 710,000 lb. of lint in 1929 to 108,000 lb. in 1932. At the same time the same careful work is required to maintain quality for a small output as for a large and the officers of the department continue to give this aspect of the question their attention. Should there be a revival in the demand for this product the three islands of the Presidency should be in a position to resume production on a large scale.

7. Efforts to establish a market for fresh vegetables to supply the Canadian demand in the winter months are described in the report. Questions of varieties, cultivation, pests, etc. have been closely investigated and with the assistance of Mr. A. C. Shill, the Marketing Officer, problems of grading, packing, packages, etc. were successfully overcome. Unfortunately the prices realized in Canada were unremunerative. These efforts are being continued, especially in the Island of Nevis.

8. Pests and diseases continue to take their toll of our chief industries. The successful introduction of the Cuban Tachniid fly (*Lixophaga diatraeae*) by Dr. J. G. Myers and Mr. H. E. Box, the latter being the entomologist especially employed by the Imperial Government for studying the status of the Sugar Cane Moth Borer in Antigua, is confidently expected to exercise an important degree of control over this pest. The addition of a pathologist to the staff of the Advisory Department will in future enable a more thorough and systematic watch to be made of the various pests and diseases than has been possible for the last few years.

9. Some progress has been made in the establishment of small holdings in Nevis and Anguilla. In spite of temporary discouragements due to economic difficulties the policy of establishing the peasants on their own lands and then educating them in better agricultural methods should be persisted with.

10. The Agricultural Department in this Presidency is now adequately staffed and I have pleasure in recording my appreciation of the good work that is being accomplished.

I have the honour to be.

Sir,

Your obedient servant,

(Sgd.) H. A. BALLOU.

Commissioner of Agriculture,

Imperial College of Tropical Agriculture.

His Honour,

The Administrator,

St. Kitts-Nevis,

B.W.I.

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STAFF OF THE AGRICULTURAL DEPARTMENT, ST. KITTS-NEVIS.

Agricultural Superintendent	R. E. Kelsick
Assistant Agricultural Officer	G. B. Gregory, D.I.C.T.A. (Trinidad)
Agricultural Instructor, Nevis	W. I. Howell
Agricultural Instructor, Anguilla	E. O. R. Lake
Assistant Clerk	M. M. Marsh.

Report of the Agricultural Department, St. Kitts-Nevis.

For the Year Ended 31st December 1932.

DISTRIBUTION OF PLANTS AND SEEDS.

The distribution of plants during the period under review was as follows:—

Ornamental trees and plants	467
Grafted mangoes (Julie)	183
Grafted avocados	12
Budded grapefruit	115
Budded oranges	21
Lime seedlings	12
Papaw plants	56
Grape plants	5
Guava plants	5

SEEDS.

Cotton seed	5,060 lb.
Onion Seed	25 lb.
Green dressing seed	21 lb.
Vegetable seeds	500 pkts.
Sugar cane cuttings	28,700

INTRODUCTION OF PLANTS AND SEEDS.

The following seeds and plants were presented to the Department :—

Orange budwood and Coffee berries by the Department of Agriculture, Dominica; Pigeon peas and Algaroba seeds (*Prosopis juliflora*) by the Hawaii Agricultural Experiment Station; four varieties of pigeon peas by the Porto Rico Agricultural Experiment Station; Maize and seeds of *Phaseolus aconitifolius* by the Commissioner of Agriculture; seeds of *Chrysalidocarpus lutescens* and *Cassia nodosa* by the Department of Agriculture, Trinidad; Sugar cane cuttings by the Departments of Agriculture, Barbados and Antigua; various seeds by Dr. David Fairchild and Professor Juan Balme.

TRIALS WITH VEGETABLES.

The results of the tomato variety and spacing experiment were recorded in last year's report.

Observation variety plots of cabbage, beans, lettuce and sweet pepper were grown. The Department's efforts to introduce cauliflower have met with success and there is now a large demand for this vegetable. Fairly large "heads" were obtained from a plot of Benares Main Crop. The seeds of this Indian variety of cauliflower were obtained through the Commissioner of Agriculture.

EXPERIMENTAL WORK ON MINOR CROPS.

Sweet Potatoes. Plots of the following varieties of sweet potato were grown:—Sister Simmonds, Never Miss, Statia, Black Rock, Sorry for the Poor, Bert, V.52 and Yellow Jersey. The first five of these can be recommended.

Yams. The following varieties were grown and planting material is available for distribution:—Horn, Oriental, Lisbon and Langy.

Cassava. The following varieties were grown:—French No. 3, White Greenaway, Black Stick, Jack Roe and Sweet No. 1. French No. 3 and Black Stick are the best of these.

Guinea Corn. The only variety retained at the Station is Mazzagua and this continues to do well.

Fruit trees. The following fruit trees have been established at the Station for propagation purposes and are doing well:—Grafted mangoes, 8 Julie and 1 Peter. Budded oranges, 8 Florida, 1 each of Washington Navel, Valencia, Pineapple, Jaffa. Budded grapefruit, 3 Marsh. Three of the oranges have been budded on rough lemon stocks and the others on sour orange.

GOVERNMENT COTTON SEED FARM.

Owing to the considerable reduction in the acreage under cotton and the unsatisfactory market only about seven acres of cotton were planted by the Government for the purpose of maintaining a seed supply.

The crop was severely attacked by the pink bollworm and a yield of about 150 lb. of lint per acre was obtained.

WORK CONNECTED WITH INSECT AND FUNGUS PESTS AND THEIR CONTROL.

SUGAR CANE.

Gumming Disease.

The position with respect to this disease is satisfactory. The two varieties which are most extensively planted, B.H.10.12 and S.C.12.4, are highly resistant to gumming disease and only resistant varieties will be extended on a commercial scale.

Mosaic Disease.

This disease was not observed during the year.

Rind Disease.

This disease was observed on canes which had been attacked by borer. With regard to this disease Arthur F. Bell, Sugar Cane Pathologist, Queensland, states in his "Key for the Field identification of Sugar Cane Diseases", that "the disease is widely distributed but is not found on otherwise healthy cane; it may follow borer attack or may be found on cane which is overripe. Measures of control are unnecessary."

Moth Borer (Diatraea saccharalis, Fabr.)

In the extract from Mr. Box's report which was published in last year's report it was recorded that the average infestation by Diatraea of all the fields examined was 79.7% of the stalks and 11.8% of the joints. The average infestation for the 1932 crop as determined by counts made at the Basseterre Factory on canes in the trucks from different estates was 20.6% of the joints. The serious losses incurred by the sugar industry of the island as a result of attacks by Diatraea have been fully realised by the Department for a very long

time and the results of a preliminary investigation of the damage caused by borer attacks are recorded in the report for 1923-24 when the infestation found in the crop reaped in 1924 after the severe drought of 1923 was considerably higher than the figures recorded above.

With funds contributed by the Basseterre Factory and the sugar estates Mr. Box's recommendation was adopted and a supply of the Cuban Tachniid fly (*Lixophaga diatraeae*) obtained with the assistance of Dr. Myers. The first consignmennt of flies was brought to St. Kitts by Mr. Box and liberated on three estates in different districts of the island. On Mr. Box's return to Antigua additional consignments were received and liberated by Mr. Gregory, Agricultural Assistant. These liberations were made in April, May and June. Mr. Box paid another visit to St. Kitts later in the year and obtained further supplies of flies by artificial rearing. By this means small colonies of flies have been distributed to nearly all the estates in the island. There is already some evidence that this parasite of the moth borer has been able to establish itself to some extent.

Weevil Borer (*Metamasius hemipterus*)

A fair amount of damage by this insect was observed but its attacks seem to be made chiefly on canes that have been already attacked by Diatraea.

COTTON.

The cotton leaf worm (*Alabama argillacea*) was observed to a very limited extent during the 1932 season and there was no damage to the crop by this pest.

The larvae of the pink bollworm (*Pectinophora gossypiella*) were found again this season soon after the first flowers had appeared. In some districts of the island the crop was severely damaged by this insect.

OTHER CROPS.

The sweet potato crop was seriously damaged in some districts of the island by slugs. At the Experiment Station tomatoes and cabbages were damaged by this pest. It is the first occasion on which considerable numbers of slugs have been observed at so low an altitude. The very wet conditions throughout the year may have been the cause.

PROGRESS IN CHIEF INDUSTRIES.

THE SUGAR CANE INDUSTRY.

The season of growth of the 1930-32 sugar cane crop was favourable. The first three months of 1931 were dry; there was good rainfall for the rest of the year with the exception of October which was very dry especially in the Valley district.

For the 1930-32 crop 6,537 acres of cane were reaped and the Basseterre Factory manufactured 19,969 tons of grey crystal sugar from 164,716 tons of cane. The average yield of the island was 25.13 tons of cane and over 3 tons of sugar per acre. The average price obtained for the sugar was £9 17s. 9d. which was somewhat better than the price in 1931.

For the 1931-33 crop it is estimated that the acreage to be reaped will be approximately 7,500 acres. On the whole, weather conditions in 1932 were very favourable but the crop sustained some damage from a storm which passed to the North of the island on the 26th September. A first estimate of the crop is 24,000 tons of sugar.

A graphical record is included in this report showing the average rainfall of the island and the average yield of cane as tons per acre for the period

1914 to 1932. The yields of cane have been put back a year to correspond with the rainfall affecting the growth of the crop. From this record it will be observed that cane yields follow the rainfall closely. The steady rise in yields of cane per acre from 1923 is chiefly the result of the introduction of better yielding cane varieties, particularly the B.H.10.12.

EXPERIMENTAL WORK WITH SUGAR CANE UNDERTAKEN BY THE DEPARTMENT.

The detailed results of the manurial experiment with ratoon canes at Molineux Estate, which was referred to in last year's report and which was reaped early in 1932, are included in this report.

The results of a variety experiment with plant canes, which was reaped which was somewhat better than the price in 1931.

The following experiments are due for reaping in 1933:—

Variety Experiments. Plant canes two stations, ratoon canes one station. The varieties under experiment as plant canes are :—B.H.10.12, S.C.12.4, B.374, B.417, P.O.J.2878, B.726, G.119. The varieties to be reaped as ratoon canes are:—P.O.J.2725, B.381, B.H.10.12, S.C. 12.4, B.374, B.417, B.726.

Spacing Experiment at one station. The following spacings are being experimented with:—6′ x 4′, 6′ x 2′, 6′ x continuous; 4½′ x 4′, 4½′ x 2′, 4½′ x continuous, 3′ x 4′, 3′ x 2′, 3′ x continuous.

Manurial Experiments. 2nd ratoon canes, one station; 1st ratoon canes, six stations. In the experiments with first ratoon canes the quantity of sulphate of ammonia to be given to ratoon canes is being investigated. At two stations an application of potash in addition to sulphate of ammonia has also been given.

The following experiments are due for reaping in 1934:—

Variety Experiments. Plant canes, one station. The following varieties are under trial: B.831, G.119, B.891, B.374, S.C.12.4, B.H.10.12, B.726.

Ratoon canes, three experiments.

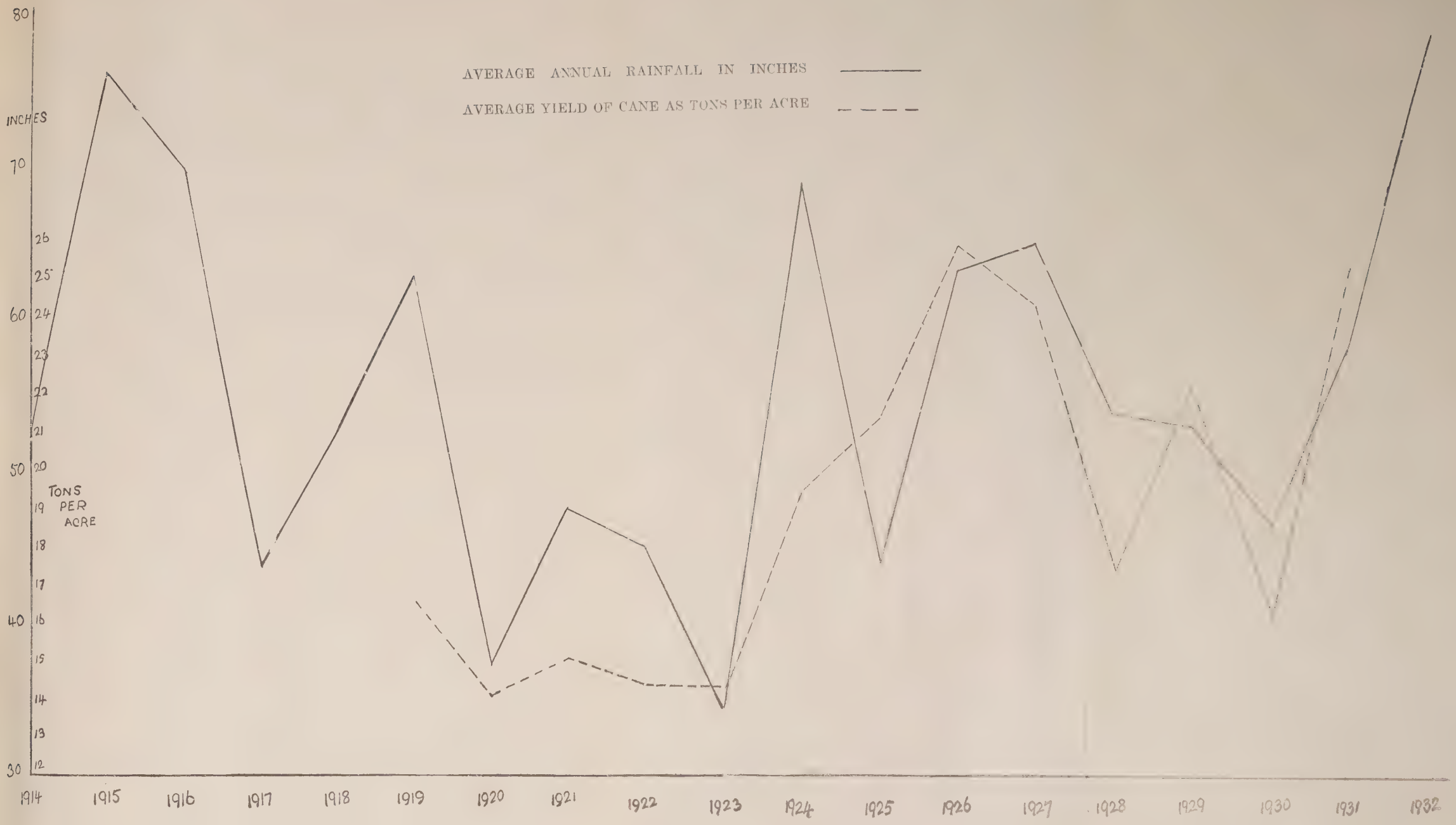
PLANT CANES.

Manurial Experiments. Five stations, six experiments.

Ratoon Canes. Spacing experiment. Three experiments on methods of cultivating and applying fertilizer.

MANURIAL EXPERIMENT ON MOLINEUX ESTATE.

In the report for 1930-31 the results were given of a manurial experiment with plant canes conducted on Molineux Estate. The results of that trial did not reveal any significant responses to the different fertilizer treatments and the failure of the canes to respond to the manures was attributed to the drought of 1930 and the inability of the plants to make use of the increased plant food in the absence of adequate moisture. On the recommendation of Mr. P. E. Turner, Soil Chemist on the staff of the Imperial College of Tropical Agriculture, Trinidad, the same treatments were given to the ratoon canes as were given to the plant canes on sixty-four of the plots. The quantity of Potash was, however, doubled. Thirty-two plots received no treatment as ratoon canes but the weights were recorded to provide data on the residual effect of the manures applied to the plant canes.


AVERAGE ANNUAL RAINFALL IN INCHES
AVERAGE YIELD OF CANE AS TONS PER ACRE
INCHES
TONS PER ACRE
80
70
60
50
40
30
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932

DETAILS OF THE EXPERIMENT.

Cane Variety and age. B.H.10.12. First ratoons.

Soil Type. A light sandy loam in good tilth. The field on which this experiment was conducted had been maintained in good heart previous to the experiment with dressings of pen manure. Even in short periods of dry weather crops suffer severely on this type of soil owing to its low water holding capacity.

Lay-out. The lay out consisted of four randomised blocks and two latin squares. The plots of the two squares were placed at the ends of the blocks. There were 96 plots in all, 64 plots in the blocks and 32 in the latin squares. Each plot was 1/25 acre and contained 88 cane holes 5′ x 4′.

Manurial Treatments to the acre.

Randomised Blocks.

1. 40 lb. Nitrogen as Sulphate of Ammonia.
2. 80 lb. „ „ „ „
3. 120 lb. „ „ „ „
4. No. „ „ „ „
5. 40 lb. „ „ „ „
   120 lb. Potash as Sulphate of Potash.
6. 80 lb. Nitrogen as Sulphate of Ammonia
   120 lb. Potash as Sulphate of Potash.
7. 120 lb. Nitrogen as Sulphate of Ammonia
   120 lb. Potash as Sulphate of Potash.
8. 120 lb. Sulphate of Potash.
9. 40 lb. Nitrogen as Sulphate of Ammonia
   40 lb. Phosphate as Superphosphate of Lime.
10. 80 lb. Nitrogen as Sulphate of Ammonia
    40 lb. Phosphate as Superphosphate of Lime.
11. 120 lb. Nitrogen as Sulphate of Ammonia
    40 lb. Phosphate as Superphosphate of Lime.
12. 40 lb. Phosphate as Superphosphate of Lime.
13. 40 lb. Nitrogen as Sulphate of Ammonia.
    120 lb. Potash as Sulphate of Potash.
    40 lb. Phosphate as Superphosphate of Lime.
14. 80 lb. Nitrogen as Sulphate of Ammonia.
    120 lb. Potash as Sulphate of Potash.
    40 lb. Phosphate as Superphosphate of Lime.
15. 120 lb. Nitrogen as Sulphate of Ammonia.
    120 lb. Potash as Sulphate of Potash.
    40 lb. Phosphate as Superphosphate of Lime.
16. 120 lb. Potash as Sulphate of Potash.
    40 lb. Phosphate as Superphosphate of Lime.

Latin Squares.

17. 25 tons Pen Manrue.
18. 12½ tons Pen Manure plus 20 lb. Phosphate as Superphosphate.
    30 lb. Potash as Sulphate
    20 lb. Nitrogen as Sulphate of Ammonia.
19. 600 lb. Humber Compound Fish Manure (5% Nitrogen 5% Phosphate) (P205) 10% Potash (K20).
20. No Manure.

The plant canes were reaped in March, 1931, and the manures were applied to the ratoon canes in April. The usual estate tillage for ratoon canes was given to the crop. Weather conditions during the whole growing season were extremely good, the rainfall being ample and well distributed. The crop of first ratoon canes was reaped in May, 1932.

The yields from the plots are given below in Table I.

TABLE I.

YIELD DATA.

YIELDS OF FIRST RATOON CANES IN CWT. PER PLOT.

Block I.

(10)	(7)	(14)	(11)
31·25	34·82	31·43	31·32
(8)	(2)	(9)	(12)
23·28	36·07	32·41	24·39
(15)	(13)	(4)	(3)
35·18	31·60	21·86	35·00
(6)	(16)	(1)	(5)
31·60	21·51	26·54	31·25

Block II.

(7)	(2)	(5)	(10)
38·95	36·11	37·28	35·45
(11)	(14)	(16)	(1)
38·08	37·37	27·82	37·15
(13)	(12)	(8)	(9)
35·85	28·82	27·78	30·60
(6)	(15)	(3)	(4)
36·16	35·27	28·29	22·39

Block III.

(5)	(9)	(15)	(8)
27·90	32·14	36·34	21·11
(16)	(13)	(11)	(1)
22·28	34·38	34·91	29·32
(14)	(4)	(10)	(2)
32·14	22·89	35·36	36·07
(6)	(3)	(12)	(7)
36·92	40·90	28·39	40·03

Block IV.

(5)	(10)	(9)	(7)
29·21	34·51	29·46	34·10
(3)	(11)	(16)	(2)
35·71	38·93	22·14	30·78
(15)	(1)	(13)	(14)
38·84	27·71	32·14	32·40
(4)	(8)	(6)	(12)
21·20	19·15	42·86	22·14

As determined by the analysis of variance the Standard Error of a single plot$=\sqrt{8.94}$.

The Standard Error (mean of 4 plots) $=\sqrt{8.94 \div 4} = 1.50$ or 4.77 per cent of the mean yield from all plots (31.44 cwt.)

TABLE II.

GENERAL STATEMENT OF RESULTS.

Comparison of Treatment Means.

MEAN YIELD OF RATOON CANES IN TONS PER ACRE.

Manurial Treatment per acre.		Plus Potash.	Plus Phosphate.	Plus Potash & Phosphate.	Means of all.
No treatment ..	27.61	28.54	32.42	29.30	29.47
Nitrogen— 40 lb. ..	37.73	39.26	38.95	41.87	39.45
Nitrogen— 80 lb. ..	43.45	46.11	42.68	41.67	43.48
Nitrogen—120 lb. ..	43.73	46.22	44.76	45.51	45.06
Means of all ..	38.13	40.03	39.70	39.59	

The standard error of the difference between any two of the mean yields per acre is 2.64 tons. A difference to be statistically significant must exceed twice the standard error or 5.28 tons.

GENERAL COMPARISONS.

		Difference.	S.E. of Diff.
Potash and Nitrogen	40.03		
Versus Nitrogen alone	38.13	1.90	1.32 tons per acre.
Phosphate and Nitrogen	39.70		
Versus Nitrogen alone	38.13	1.57	
Potash and Phosphate with Nitrogen ..	39.59		
Versus Nitrogen alone	38.13	1.46	
Nitrogen	42.66		
Versus No Nitrogen	29.47	13.19	

The costs of the different manurial applications are given in Table III.

TABLE III.

MEAN YIELDS OF PLOTS OF FOUR RANDOMISED BLOCKS.

Fertilizer per Acre.	Yield per acre.	Difference over No Manure.	Cost of manuring.	Value of increment @ $3·36 per ton cane.	Gain from manuring.
	Tons		$	$	$
No Manure	27·61	–	–	–	–
190 lb. Sulphate of Ammonia ..	37·69	10·08	5·50	33 87	28·37
380 „ „ „ „ ..	43·45	15·84	11·00	53·22	42.22
570 „ „ „ „ ..	43·73	16·12	16·50	54·16	37·66
190 lb. Sulphate of Ammonia .. 240 lb. Sulphate of Potash	39·26	11·65	13·10	39·14	26·04
380 lb. Sulphate of Ammonia .. 240 lb. Sulphate of Potash	46·12	18·51	18·60	62 19	43·59
570 lb. Sulphate of Ammonia .. 240 lb. Sulphate of Potash	46·22	18·61	24·10	62·52	38·42
240 lb. Sulphate of Potash	28·51	0·93	7·60	3·12	- 4·48
190 lb. Sulphate of Ammonia .. 250 lb. Superphosphate of Lime ..	38·94	11·33	9·50	38·07	28 57
380 lb. Sulphate of Ammonia .. 250 lb. Superphosphate of Lime ..	42·67	15·06	15·00	50·60	35·60
570 lb. Sulphate of Ammonia .. 250 lb. Superphosphate of Lime ..	44·76	17·15	20·50	57·62	37·12
250 lb. Superphosphate of Lime ..	32·42	4·81	4·00	16·16	12·16
190 lb. Sulphate of Ammonia .. 240 lb. Sulphate of Potash .. .. 250 lb. Superphosphate of Lime ..	41·86	14·25	17·10	47·88	30·78
380 lb. Sulphate of Ammonia .. 240 lb. Sulphate of Potash .. .. 250 lb. Superphosphate of Lime ..	41·67	14·06	22·60	47·24	24·64
570 lb. Sulphate of Ammonia .. 240 lb. Sulphate of Potash .. .. 250 lb. Superphosphate of Lime ..	45·50	17 89	27·10	60.11	33·01
240 lb. Sulphate of Potash .. .. 250 lb. Superphosphate of Lime ..	29 30	1·69	11·60	5·68	- 55·92

TABLE IV.

YIELD DATA.

Yields of first ratoon canes in cwt. per plot.

Treatment numbers are shown in brackets.

Latin Square I.

(19)	(20)	(18)	(17)
20·84	23·25	31·78	31·55
(20)	(18)	(17)	(19)
19·60	32·57	35·44	27·14
(18)	(17)	(19)	(20)
23·89	28·71	27·64	22·03
(17)	(19)	(20)	(18)
27·50	23·47	21·53	27·50

Latin Square II.

(19)	(17)	(18)	(20)
20·36	27·54	27·79	23·53
(17)	(19)	(20)	(18)
27·25	23·07	21·34	26·60
(20)	(18)	(19)	(17)
19·40	29·00	21·43	24·64
(18)	(20)	(17)	(19)
27·39	25·71	29·86	23·21

As determined by the Analysis of Variance the Standard Error of a single plot $= \sqrt{1.45}$.

The Standard Error (mean of 8 plots) $= \sqrt{1.45 \div 8} = 0.4257$ or 1.65 per cent of the mean yield from all plots (25.80 cwt.)

TABLE V.

MEAN YIELD OF PLANT CANES IN TONS PER ACRE, 1931.

	Manurial Treatment per acre, as plant canes.	Mean Yield.	Difference from treatment (1).	Difference from treatment (2).
1.	No treatment	27.5	..	..
2.	12½ tons Pen Manure plus a mixture of fertilizers supplying 20 lb. N, 30 lb. K20 and 20 lb. P205	29.6	2.1	..
3.	25 tons Pen Manure	29.0	1.5	–0.6
4.	600 lb. Fish Manure	30.3	2.8	0.7

TABLE VI.

MEAN YIELD OF FIRST RATOON CANES IN TONS PER ACRE, 1932.

Manurial Treatment per acre, as plant canes.	Mean Yield.	Difference from treatment (1).	Difference from treatment (2).
1. No treatment	27.57	..	..
2. 12½ tons Pen Manure plus a mixture of artificials as above.	35.38	7.81	..
3. 25 tons Pen Manure	36.76	9.19	1.38
4. 600 lb. Fish Manure	29.24	1.67	-6.14

TABLE VII.

TOTAL YIELDS OF PLANT AND FIRST RATOON CANES IN TONS PER ACRE.

Manurial Treatment per acre in 1930.	Total Yield.	Diff. from No Manure	Cost of Manuring. $	Value of increment @ $3.36 per ton cane. $
1. No treatment	55.07	..	..	..
2. 12½ tons Pen Manure plus mixture of artificials as above.	64.98	9.91	21.15	33.30
3. 25 tons Pen Manure ..	65.76	10.69	39.00	35.92
4. 600 lb. Fish Manure ..	59.54	4.47	16.00	15.02

CONCLUSIONS.

The following conclusions may be drawn from the results of this experiment in which applications of fertilizers were given to B.H.10.12 first ratoon canes the plant canes of which had also received dressings of fertilizer salts.

(a) Significant responses to nitrogenous manures have been recorded. The yield from the double dressing is significantly greater than that given by the unit dressing. The yield from the triple dressing is not significantly greater than that given by the double dressing.

(b) An application of 120 lbs of Potash (K20) in addition to the Nitrogen increased the yield by about 2 tons of cane per acre. This increase is not significant.

(c) An application of phosphate with Nitrogen gave a small increase of yield but this also is not statistically significant.

RESIDUAL EFFECT ON YIELD OF FIRST RATOONS.

As has been stated previously the first ratoon canes on the thirty-two plots of the two latin squares received no manurial treatment. All the plots received the usual estate tillage for ratoon canes.

The yield data etc., are given below in Tables IV to VII.

CONCLUSIONS.

The residual effect on yield of the pen manure plus artificials and the pen manure treatments are definitely significant. The residual effect of the 600 lbs of Fish Manure is very small and the increase in yield recorded is not significant.

From the costs of manuring it will be observed that an application of 12½ tons of pen manure plus a small dressing of fertilizer salts is much more profitable than 25 tons of pen manure or 600 lbs. of Fish manure.

VARIETY TRIALS WITH SUGAR CANE, 1931—1933.

PLANT CANES.

Trials with cane varieties were carried out at two stations in the 1931-33 season, Molineux and Buckleys. The following seven varieties were planted at both stations: B.H.10.12, S.C.12.4, B.726, B.374, B.417, G.119 and P.O.J.2878.

The lay-out at each station was the same and consisted of four randomised blocks. In each plot there were 162 cane holes. At Buckleys 108 holes (1-20th Acre) from each plot were weighed and at Molineux 100 holes. The border rows were eliminated. A 50 lb. cane sample from each plot was crushed and the juice analysed.

The results are given in tables VIII and IX.

The results at Buckleys are not significant by the Z test but those at Molineux are significant on the one per cent value of Z.

Buckleys estate was chosen as representative of the estates in the Valley district (low rainfall) and Molineux as representative of the estates in the Northern district (high rainfall). The rainfall of 1932 was abnormal, being 20 inches above the average. The varieties at Buckleys were therefore not grown under the average conditions of the Valley district.

P.O.J.2878 has shown up well at both stations. This variety has two very undesirable characteristics—profuse early arrowing and liability to uprooting by even moderate winds. It is, however, deserving of further trial.

The Guadeloupe seedling 119 gave promising results in both experiments and it should be tried on a small scale on all estates.

B.726 gave extremely good results at Buckleys and further trials will be carried out with this variety. It appears to be more suitable to conditions in the Valley district than B.H.10.12.

B.417 and B.374 will be eliminated from further trials in the Valley district. B.374 will be retained at Stations in the Northern district as the results of the experiment with ratoon canes indicate that this variety is a good ratooner.

VARIETY TRIAL—MOLINEUX ESTATE.

PLANT CANES.

Planted October, 1931.
Reaped 28th February & 1st March, 1933.
Average rainfall 68 inches

Manurial Treatment—400 lb Humber Fish Manure and 200 lb Sulphate of Ammonia.
Rainfall 1932 91 inches.

TABLE VIII.

Variety	Means for							
	No of plots and analyses	Cane tons per acre.	Extraction per cent.	Sucrose in juice lb. per gallon.	Purity.	Sucrose in juice, lb. per acre.	Sucrose in juice tons per acre.	
P.O.J. 2878	4	34·85	58·4	1·906	90·4	8,210	3·66	
B.H.10.12.	4	30·30	57·8	2·089	93·5	7,540	3·37	
G.119	4	30·90	57·9	1·994	91·9	7,440	3·32	
B·374	4	30·11	58·5	1·981	92·5	7,210	3·22	
B·726	4	29·11	57.8	2·041	93·9	7,110	3·18	
S.C.12.4	4	29·42	58·1	1·995	93·1	7,090	3·16	
B.417	4	22·15	59·3	2·001	93·2	5,440	2·43	
Means of all		29·55	58·2	2·001	92·6	7,150	3·19	

By the Z test the results are significant and might be due to chance less than once in 100 times.

Standard Error of difference between any two mean yields 2.55 tons per acre

Significant difference between mean yields of any two varieties (S.E. x 2) 5.10 „ „ „

VARIETY TRIAL—BUCKLEYS ESTATE.

PLANT CANES.

Planted October, 1931.
Reaped February 13th—16th, 1933.

Manurial Treatment—400 lb. per acre of a complete fertilizer mixture. (7% Nitrogen 6% Phosphate (P205) 5% Potash (K20)).

Average rainfall 48 inches

Rainfall 1932 71 inches

TABLE IX.

Variety.	Means for						
	No. of plots and analyses.	Cane, tons per acre.	Extraction per cent.	Sucrose in juice, lb. per gallon.	Purity.	Sucrose in juice lb. per acre.	Sucrose in juice tons per acre.
B. 726	4	41·37	60·6	2·177	93·9	11,340	5·06
P. O. J. 2878 ...	4	42·81	57·4	2·069	91·2	10,610	4·73
S. C. 12·4 ...	4	39·10	58·1	2·051	92·9	9,770	4·36
G. 119	4	37·87	60·1	2·085	93·8	9,760	4·35
B. 417	4	35·34	59·6	2·146	93·0	9,340	4·17
B. H. 10. 12 ...	4	36·76	55·1	2·121	93·7	8,880	3·96
B. 374	4	31·93	57·6	1·986	92·0	7,590	3·39
Means of all ...		37·88	58·4	2 091	92·9	9,610	4·29

By the Z test the results are not significant.

(b) RATOON CANES.

The results of a variety trial at Molineux Estate with seven varieties as plant canes were recorded in last year's report. These varieties have been reaped as first ratoon canes and the results are given in table X.

From these figures it will be seen that, under the conditions of this experiment, the three best ratooning canes were, B.H.10.12, S.C.12.4, and B.374.

B.H.10.12 has maintained its reputation for ratooning.

SUGAR CANE SPACING EXPERIMENT.

A spacing experiment was carried out at Molineux Estate with the variety B.H.10.12. Nine spacings were employed, viz., 6ft. x 4ft., 6ft. x 2ft., 6ft. x 1ft. (continuous), 4½ft. x 4ft., 4½ft. x 2ft., 4½ft. x 1ft. (continuous), 3ft. x 4ft., 3ft. x 2ft., 3ft. x 1ft (continuous).

The lay-out was four randomised blocks and the plots were 1/20 acre each.

The results are summarised in table XI.

By the Z test the results are significant and might be due to chance less than once in 100 times.

Under the conditions of the experiment (high rainfall) the yields of cane recorded from the closer spacings are significantly higher than those from the wider spacings.

This experiment will be repeated at a station in the low rainfall district.

The Department is greatly indebted to the Managements of Molineux and Buckleys estates for their co-operation in carrying out these experiments.

VARIETY TRIAL—MOLINEUX ESTATE.

FIRST RATOON CANES.

Reaped as Plant Canes February, 1932.
Cut as 1st Ratoon Canes March, 1933

Manurial Treatment—448 lb. Sulphate of Ammonia per acre.

TABLE X.

Variety.	Means for No of plots and analyses	Cane, tons per acre	Extraction per cent.	Sucrose in juice lb per gallon	Purity	Sucrose in juice lb per acre.	Sucrose in juice tons per acre.
B. H. 10 12 ...	7	45.51	56.8	2.062	93.2	11,060	4.93
S. C. 12 4 ..	7	43.41	56.3	2.030	93.9	10,240	4.57
B. 374	6	42.57	56.4	2.070	93.1	10,280	4.59
B. 726	7	38.16	56.4	2.061	93 8	9,200	4.11
P. O. J. 2725 ...	7	39.80	55.0	2.041	91.7	9,120	4.07
B. 417	7	33.10	55.6	2.152	94.0	8,260	3.68
B. 381	7	28.60	55.8	2.058	94.2	6,820	2.90
Means of all ...		38.74	56.0	2.068	93.4	9,280	4.14

By the Z test the results are significant and might be due to chance less than once in 100 times.

Standard Error of Difference between any two mean yields — 1.97 tons cane per acre

Significant difference between mean yields of any two varieties (S.E. x 2) — 3.94 „ „

SUGAR CANE SPACING EXPERIMENT.

MOLINEUX ESTATE.

SUMMARY OF RESULTS.

TABLE XI.

Planted October, 1931. Reaped 22nd–24th February, 1933.

Treatment.	Mean yield of treatment in tons per acre.	Standard Error of treatment means.	Row width.	Mean yield for row width in tons per acre.	Plant distance.	Mean yield for plant distance in tons per acre.	Standard Error of means.
3′ × 4′	31·84	1·45	3 ft.	34·88	1 ft.	35·43	0·8340
3′ × 2′	35·26		4½ „	32·12	2 „	32·70	
3′ × 1′	37·55		6 „	28·10	4 „	26·97	
4½′ × 4′	27·00						
4½′ × 2′	33·26						
4½′ × 1′	36·11						
6′ × 4′	22·08						
6′ × 2′	29·58						
6′ × 1′	32·64						

THE COTTON INDUSTRY.

As a result of the unsatisfactory market for sea island cotton the area under this crop has been considerably reduced and the acreage planted in 1932 was approximately 200 acres. In some districts of the island the crop was seriously damaged by the pink bollworm.

The production was 35,140 lb. of lint of which 17 per cent was stained cotton. The yield per acre was 175 lb of lint.

According to the Customs return the export of cotton from the Presidency for the year ended 31st December, 1932, was 127.444 lb. lint valued at £5,961.

A conference of West Indian Sea Island Cotton Growers to consider the Sea Island cotton situation in the West Indies was held at Barbados from March 31st to April 7th, 1932. The growers of St. Kitts were represented at this Conference by the Honourable A. M. Reid, and the growers of Nevis and Anguilla by Mr. G. A. Jones, Assistant Commissioner of Agriculture. As recommended by the Conference, a local cotton growers association has been formed in St. Kitts and the Agricultural Superintendent is Secretary-Treasurer of this Association.

The collapse of the Sea Island cotton market is a serious blow to all three islands of the Presidency, and every effort should be made to bring about some improvement of the present situation.

COTTON SELECTION.

Cotton selection was carried on along the usual lines. Nine progeny rows were grown. The following results were obtained on the detailed examination of 28 plants of the row selected as being most desirable for carrying on the strain:—

Mean Maximum Lint Length in mm.	Range.	Lint per seed.		Seed Weight.	
		mgs.	Range.	mgs.	Range.
53	51.4—55	45	42—49	134	112—146

At Dr. Harland's request seeds of the St. Vincent strains AN(2)14 and O(28)27 and the Montserrat strain H(39)8 were sent from the Cotton Station at St. Vincent for trial in St. Kitts. As it has been found that the lint of these strains is not up to the standard of the cotton under cultivation in St. Kitts it has been decided not to continue with them further.

VEGETABLE GROWING FOR THE CANADIAN WINTER MARKET.

The quantity of vegetables shipped to Canada during the 1931-32 season was very much less than the previous season. For this reason the cold storage plant was available and it was possible to save a considerable quantity of produce which would have been lost as a result of the prevailing shipping facilities with Canada. The services of Mr. A. C. Shill, M.Sc., etc., Marketing Officer, were also available.

A comparative statement is given below showing the produce exported to Canada in 1931 and 1932:—

	1931 lb.	Net Price to growers per lb.	1932 lb.	Net Price to growers per lb.
Tomatoes	91,146	3 cts.	29,396	0.5 ct.
Stringless Beans ..	1,077	16 „	2,029	loss
Egg Plants	240	2 „	416	0.8 cts.
Cucumbers	78	16 „	..	..
English Potatoes ..	8,450	3 cts.	..	..
Sweet Peppers ..	..		84	5.9 cts.

The results of the 1932 season were extremely unsatisfactory and the growers of tomatoes and stringless beans made losses. It appears that the low prices of tomatoes were due to:

(1) Very large supplies from the Bahamas.

(2) Low buying power of the Canadians.

(3) Large shipments of tomatoes from Mexico.

A large proportion of the shipments of beans did not arrive on the market in sound condition. The Marketing Officer has attributed the difficulty of marketing beans to the watery and tender nature of this vegetable and to the long period during transit. This is unfortunate as many planters were prepared to grow this crop for export.

EXPERIMENTS ON PRECOOLING OF TOMATOES.

The following results were obtained from experiments carried out by the Agricultural Assistant to obtain information on the keeping qualities of tomatoes kept in cold storage after being packed for export.

The Marglobe variety was used in these experiments. Four crates were packed under conditions similar to those prevailing when packing is being done for export. The time that elapsed between picking and placing in the store was about three hours. The fruit used was at the mature green stage.

Crate.	Treatment.	Per cent ripe.	Per cent turning.
I	One week in store	nil.	12.5
II	One week in store, four hours exposure and another week in store	7.1	9.7
III	Two weeks in store, not exposed	4.2	13.8
IV	Three weeks in store, not exposed ..	13.3	33.3

The results of this experiment indicate that tomatoes picked at the mature green stage and wrapped and packed for export can be held in cold storage at about 50° F for from one to two weeks with only a small percentage of fruit ripening up.

In a larger experiment in which 12 crates were used it was found that tomatoes which were packed and held in cold storage for 12 days before shipment showed 25 per cent ripe fruit on arrival at St. John while those which had been held in cold storage for one day prior to shipment showed 9 per cent of ripe fruit.

The question of the "sweating" of tomatoes during transport from cold storage to the ship and the necessity of allowing the fruit to heat up slowly for some time before shipment, as was suggested by the Fruit Transport Specialist of the Canadian Department of Agriculture, was investigated with the assistance of the Marketing Officer. The results of this experiment indicated that there was no need to allow the fruit to heat up slowly before shipment and that the effect of any sweating was negligible.

An experiment was also carried out to ascertain to what extent crated tomatoes will rise in temperature while being transported from the cold storage rooms on shore to those on board ship. The rise in temperature was found to amount to less than a ½° F.

RETURN OF AGRICULTURAL PRODUCE EXPORTED FROM THE PRESIDENCY OF ST. KITTS-NEVIS FOR THE YEAR ENDED 31ST DECEMBER, 1932.

Article	Quantity		Value
Sugar, crystals	19,327	tons	£187,347
Syrup and Molasses	459,386	gallons	1,200
Cotton, Sea Island	127,444	lb. lint	5,961
Cotton Seed	35	tons	290
Cotton Seed Oil	2,657	gallons	224
Coconuts	78,770		445
Copra	16,480	lb.	215
Salt	759	tons	655
Vegetables, Tomatoes	58,590	lb.	524
„ other			879
Fruit			108
Tamarinds			10
Hides and Skins	2,501		129
Horses	33		244
Mules	103		692
Asses	57		51
Cattle	221		1,061
Sheep	433		311
Goats	199		115
Swine	139		162

EXPORTS OF SUGAR.

The following Table gives the Exports of Sugar from the Presidency for the twenty-five years 1908—1932.

Year	Tons	Year	Tons
1908	11,044	1921	10,592
1909	12,027	1922	9,648
1910	12,510	1923	10,717
1911	11,139	1924	9,699
1912	10,554	1925	15,043
1913	11,312	1926	15,651
1914	9,946	1927	17,363
1915	8,311	1928	18,610
1916	16,106	1929	12,736
1917	15,048	1930	17,637
1918	9,105	1931	10,579
1919	11,015	1932	19,327
1920	12,483		

EXPORTS OF COTTON.

The following table gives the exports of cotton lint from the Presidency for the twenty-five years ended September 30, 1932.

Year.	St. Kitts lb.	Nevis lb.	Anguilla lb.	Total lb.
1908 ..	241,006	211,431	76,200	528,637
1909 ..	207,146	104,250	49,320	360,716
1910 ..	231,150	129,973	43,400	404,523
1911 ..	329,322	344,395	148,595	822,312
1912 ..	332,168	165,329	97,142	594,639
1913 ..	374,594	166,477	112,138	653,209
1914 ..	372,633	268,542	94,372	735,547
1915 ..	397,567	305,154	33,750	736,401
1916 ..	131,859	99,173	49,620	280,652
1917 ..	106,265	196,915	49,399	352,579
1918 ..	2,457	187,748	652	190,857
1919 ..	422,681	307,212	47,869	797,762
1920 ..	288,720	292,627	61,543	642,890
1921 ..	23,970	422,120	nil	446,090
1922 ..	228,612	225,851	50,120	504,583
1923 ..	29,256	510,919	nil	540,175
1924 ..	81,590	234,957	23,342	344,907
1925 ..	186,607	81,844	nil	267,451
1926 ..	297,023	126,014	4,337	427,374
1927 ..	220,095	224,588	nil	444,683
1928 ..	161,360	113,492	1,506	276,358
1929 ..	250,357	436,892	23,463	710,712
1930 ..	365,811	286,791	26,505	679,107
1931 ..	235,668	161,922	31,310	428,900
1932 ..	78,727	16,244	13,150	108,121

PLANT LEGISLATION.

Ordinance No. 3 of 1907. "The Fumigation of Plants Ordinance" enforces the fumigation of all imported plants at the discretion of the local Agricultural Officer.

Ordinance No. 8 of 1918. "The Cotton Ordinance" regulates the planting of cotton and provides for the destruction of cotton plants.

Ordinance No. 6 of 1923 "The Cotton Ordinance Amendment Ordinance" provides for the inspection of land before the planting of a new crop.

Ordinance No. 2 of 1923 "The Plant Protection Ordinance" provides for the prevention and eradication of diseases and pests affecting vegetation.

Proclamation dated the 21st August, 1930, under the Plants Protection Ordinance, 1923, prohibits the importation of fruits, suckers and every part of the Banana from all places except Barbados, St. Vincent and the Leeward Islands; Coconuts and Coconut Palms from Grenada, St. Vincent, Trinidad and Tobago, Cuba, Jamaica and the countries of Central and South America; Citrus Plants and Fruits from the United States of America, Cuba, Jamaica, Haiti, the Dominion Republic and Porto Rico; Soil from all places; Sugar Cane and all parts thereof, cotton seed and seed cotton, from all places without the written authority of the Governor.

Ordinance No 11 of 1930. "The Exportation of Fruit Ordinance" regulates the examination and exportation of fruit, prohibits the shipment of defective fruit and makes provision for the export of fruit.

Statutory Rules and Orders, No. 1 of 1931. "The Exportation of Fruit Rules, 1931."

Statutory Rules and Orders, No. 17 of 1932. Proclamation dated 8th November, 1932, prohibiting the importation of Bananas and parts of Banana plants from Barbados.

METEOROLOGY.

The following are summaries of the observations recorded at the Experiment Station, La Guerite, during the year under review.

Barometric Pressure. During 1932 the mean pressure, corrected for temperature and gravity and reduced to sea-level, at 9 a.m. was 29.981 and at 3 p.m. 29.916, the highest recorded being 30.160 on February 5th and the lowest 29.600 on September 26th, when a cyclonic disturbance of moderate intensity passed to the North of the island.

Temperature. The mean maximum temperature for the year was 83.8° F. and the mean minimum 73.7° F. The maximum extreme for the year, 91° F., was registered on September 16th and the minimum extreme, 64° F., on January 8th. The mean average temperature was 78.8° F. and mean monthly range 17.3° F.

Humidity. The mean relative humidity was at 9 a.m. 75.1% and at 3 p.m. 73.1%.

Rainfall. The total rainfall measured at the Experiment Station was 73.01 inches. This fell on 206 days, the greatest fall being 3.89 inches on November 13th. The total average rainfall for the year 1932 from 33 stations was 77.27 inches; the average rainfall of the island for the year 1914 to 1932 being 55.03 inches. The average rainfall of 1932 appears to be the highest on record for the past thirty years.

Latitude 17° 20′ N. **METEOROLOGICAL REPORT FOR 1932.** Heights above M. S. L. — Barometer 157 feet. Rain Guage 152 „

Longitude 62° 45′ W. AGRICULTURAL DEPARTMENT, ST. KITTS.

Months	Barometric Pressure reduced to Sea Level 32° Fahrenheit and corrected for gravity. Inches.					Temperatures °F.								Vapour Pressure Ins. of Mercury.			Relative Humidity per cent.			Inches Rainfall.	No. of days on which rain fell.
	9 a.m	3 p.m.	Mean.	Highest.	Lowest.	Maximum Means.	Minimum Means.	Maximum Extreme.	Minimum Extreme.	Mean for Month.	Range for Month.	Dew Point 9 a.m.	Dew Point 3 p.m.	9 a.m.	3 p.m.	Mean.	9 a.m.	3 p.m	Mean.		
January	30·035	29·950	29·993	30·144	29·861	80 0	70 0	82	64	75·0	18	68·1	68 8	·713	·707	·710	76·7	73·9	75·3	8 63	16
February ...	30·013	29 979	30·011	30·160	29·843	80·2	70·0	81	67	75·1	17	65·7	67 2	·662	668	·665	67·8	66 8	67·3	2 52	8
March	29·998	29·929	29 964	30 096	29·804	83·3	71·2	85	66	77·3	19	68 8	69 2	·742	·727	·735	72 0	66·7	69·4	2·55	9
April	29 974	29·904	29 939	30 074	29·797	8·27	73·3	85	69	78·0	16	70 3	70·0	·760	·757	·759	73·8	72 2	73·0	4·58	16
May	29·975	29·923	29 9 19	30·063	29·789	81·6	75 0	87	70	79 8	17	73·8	75 2	·813	·878	·861	76·8	79 8	78 3	7 09	13
June	30·005	29 956	29 981	30·058	29 923	85·5	75·2	88	69	80·4	19	75·0	75·2	·884	·884	·884	77 2	76·0	76·6	6·45	18
July	30·018	29·982	30·000	30·072	29 925	85·9	75·2	88	70	80·6	18	74·2	74·8	·863	·861	·862	76 0	73·0	74·5	4·78	16
August	29 960	29·901	29·931	30·004	29 826	86·3	76 4	89	71	81·4	18	74·7	76·3	·852	·891	·873	76 0	76·9	76·5	4·85	22
September ..	29 923	29·869	29·896	30·000	29 600	87·1	75·7	91	73	81·4	18	75·2	75 2	·866	·852	.859	76 0	73 0	74·5	6·72	21
October	29·926	29·881	29 904	29 994	29·751	86·0	75·5	88	71	80 8	17	74 0	74·8	·829	·834	·832	75·4	73·0	74 2	8 64	22
November ..	29 922	29·801	29·862	29·981	29·769	83·3	74 6	86	71	79 0	15	73·5	73·2	·803	·805	·804	78 0	75·2	76·6	11·33	20
December ..	29·995	29·924	29·960	30·101	29 850	81·2	72 6	83	68	76·9	15	69·5	69·2	·703	·709	·706	75·2	70·2	72·7	4 87	25
Means ..	29·981	29 924	29·919			83 8	73·7	86 4	69·1	78 8	17·3	71·9	72·5	·793	·798	·796	75·1	73·1	74·1	73·01	206

RAINFALL RETURN FOR ST. KITTS FOR YEAR 1932.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Lodge	8·11	2·30	3·92	5·93	11·13	9·06	7·48	9·62	10·85	11·60	15·59	4·53	100·12
Wingfield	7·63	2·40	3·55	5·85	10·56	7·65	7·23	8·12	5·68	11·84	19·78	8·03	98·32
Brothersons ...	4·16	1·10	6·33	6·32	12·49	7·00	5·01	12·54	12·80	10·02	16·50	2·67	97·03
Parsons	4·57	2·30	4 31	6 62	16·08	7·88	5·38	9·13	8·70	10·71	18 21	2 70	96·59
Willets	3 84	0·86	4·43	8·76	15·72	6·27	4·07	8·29	9·20	7·52	23·68	2·54	95·18
Belmont	4·08	1·01	5·17	6·91	14·87	7·45	4·67	8·70	10·04	8·10	19·58	3·66	94·24
Molineux	7·22	2·56	3·57	5·73	9·49	8·13	6·45	9·18	7·93	12·98	13·35	4·46	91·05
Caines	4·67	1·05	3·61	5·59	14·70	6·75	4·97	8·20	8·86	10·67	16·55	3·22	88·84
Mansion.	5·61	2·20	2 80	5·10	9 80	7·07	6·61	11·02	7·20	9·69	14·85	3·44	85·39
Bourkes	5·00	2·10	3.39	4·22	11·40	7·20	5·67	7·53	4·21	10·48	15·02	7·17	83·39
Stapleton	8·18	3 88	1.96	4·05	6·36	8·48	5·58	8 93	12·24	5·38	13·35	4·80	83·19
Con Phipps ...	6·30	4·00	2·72	5·14	6·01	7·28	7·42	5·37	3·10	12·98	14·76	7·24	82·32
Estridge	6·38	2 20	3·48	5·23	11·52	5·56	6·18	7·42	6·05	8·46	15·31	2·77	80·56
Brighton	6·58	1·98	2 92	5·17	9·33	7·71	5·87	6 76	6·84	9·35	12·68	3·70	78 89
Sir Gillies	3·35	2·05	0·80	4·80	10·35	6·40	6·61	4·50	10·50	8·20	16·50	4 80	78·86
Belle Vue	4·64	1·26	2·99	5·49	11·37	4·68	5·15	5·89	5·94	9·49	15·28	5·51	77·69
Shadwell	9 42	2 05	1·48	3 35	7·31	6 93	6·05	5·47	6·20	9·17	14·14	5·05	76·62
Stone Fort ...	7·64	1·64	1·36	5·19	9·27	5 85	5·30	4·54	4·76	7·21	15·89	5·75	74·40
College	9·12	1 67	2 07	3 34	8·05	6·17	4·38	4·88	7·42	8·96	13 11	3 89	73·06
La Guerite ...	8·63	2·52	2 55	4·58	7·09	6·45	4·78	4·85	6·72	8·64	11·33	4·87	73·01
Mills	5 89	1·97	2·74	4·35	7·73	6·20	6·34	7·86	5·70	7·81	12·18	2·57	71·34
Buckleys	8 63	2·42	2·08	4·01	7·64	6·22	4·63	4 80	6·06	7 90	11 50	5·08	70·97
Douglas	8·24	1·79	2·48	2·71	7·16	5·47	4·08	5·05	7·36	8·03	13·40	3 77	69·54
Needsmust ..	8·20	1.10	0·45	4·45	6·40	5·60	5·63	4·10	8·30	3·95	17 05	3·75	68·98
Hermitage ...	5·96	1·50	2 34	4·53	7·93	6·20	4·17	5·94	7·95	6·73	13·18	2·33	68·76
West Farm ...	8·55	1·56	2·20	3·23	7·70	5·58	4·48	6·47	3·49	9·02	10 99	4·61	67·88
St. Kitts Factory	7·68	1·69	2·18	3·23	6·78	5·81	3·85	4·80	6·85	7·45	11·65	3·78	65 75
Lower Bourryeau	5·56	1·64	2·79	4·15	·95	4.45	4·90	6·26	6·27	7·63	11·40	2·91	64·91
Frigate Bay ...	7·50	1·43	1·79	3·67	8·51	5·46	5·38	3·49	3·79	7·78	10·07	3·66	62·62
Cunninghams ...	5·83	1·55	1·91	3 93	6·71	5·31	4·62	5·45	4 83	7·20	9 86	3·19	60·39
Pond	7·00	2 40	2 40	2·90	7·55	5 80	3·75	3·80	4·30	6·37	10·22	2·65	59·14
Canada	5·30	1·38	1·78	4 96	6·19	4·66	4·67	2·28	8·40	5·68	9·33	2·62	57·25
Conaree	6 52	1·23	1.86	3·44	6·95	4·59	3·67	3·72	4·04	3·13	11·70	27·7	53·62

AVERAGE RAINFALL 1914—1932.

In 1914 the average rainfall on 31 Stations was 52.92 in.

1915	„	„	32	„ 75.59 „
1916	„	„	35	„ 69.51 „
1917	„	„	33	„ 43.53 „
1918	„	„	30	„ 52.44 „
1919	„	„	29	„ 62.84 „
1920	„	„	28	„ 37.13 „
1921	„	„	29	„ 47.09 „
1922	„	„	33	„ 44.84 „
1923	„	„	30	„ 34.58 „
1924	„	„	28	„ 68.13 „
1925	„	„	32	„ 43.54 „
1926	„	„	27	„ 62.57 „
1927	„	„	29	„ 64.36 „
1928	„	„	29	„ 53.25 „
1929	„	„	28	„ 52.55 „
1930	„	„	31	„ 45.98 „
1931	„	„	31	„ 57.60 „
1932	„	„	33	„ 77.27 „

The average rainfall for 19 years is 55.03 inches, so that the rainfall for the year 1932 is 22.24 inches above the average.

AVERAGE MONTHLY RAINFALL.

	1932	1914—1932
	Inches	Inches
January	6.54	3.20
February	1.90	2.05
March	2.74	2.48
April	4.75	4.08
May	9.20	4.18
June	6.40	4.18
July	5.30	4.99
August	6.52	5.50
September	7.05	5.92
October	8.49	6.61
November	14.18	6.92
December	4.07	4.52

DETAILS OF ADMINISTRATION.

EXPENDITURE.

Personal Emoluments	£	746	8 1
Travelling Allowances		95	18 2
Experiment Stations		173	19 11
Sugar Cane, Cotton and other Experiments ..		133	6 6
Apparatus, Chemicals and Books		18	0 3
Contingencies		13	2 8
Destruction of wild cotton and cotton pests ..		18	8 0
Government Cotton Seed Farm		82	8 10
Demonstration Plot, Anguilla		46	19 11
Total	£	1,328	12 4
Agricultural Assistant, St. Kitts and Agricultural Instructor, Anguilla (Colonial Development Fund)		513	4 4

REVENUE.

Experiment Stations	£	47	10 11
Government Cotton Seed Farm		22	13 9
Total	£	70	4 8

STAFF CHANGES.

Mr. M. M. Marsh, Assistant Clerk, resigned his appointment at the end of the year.

OFFICIAL VISITS.

Visits were paid to the station during the year by Professor H. A. Ballou, Commissioner of Agriculture, Mr. G. A. Jones, Assistant Commissioner of Agriculture, and Mr. A. C. Shill, Marketing Officer.

Mr. H. E. Box, F.E.S., Entomologist (Colonial Development Fund) Antigua, visited the island in connexion with the introduction of the Cuban Tachniid fly (*Lixophaga diatraeae*) for the control of the smaller moth borer of the sugar cane.

Report of the Agricultural Instructor, Nevis.

For the Year 1932.

DISTRIBUTION OF PLANTS AND SEEDS.

The following plants, seeds &c. were distributed from the station during the year under report :—

Ornamental trees and plants	62
Gliricidia	1193
Guava	8
Grafted Limes	32
Bread Nuts	3
Papaw	2
Grafted Mangoes	15
Avocado Pears	11
Budded Oranges	49
Casuarina	7
Sapodilla	8
Belle Apple	8
Cashew	4
	1402

PLOT EXPERIMENTS.

Experiments with economic and food crops were carried out at the station and seeds and cuttings of the varieties giving the best results were distributed.

The following is a list of the seeds and cuttings distributed during the year:—

Sweet Potatoes	2900	cuttings
Cassava	3060	„
Cane Plants	38280	„
Yams	1519	lb.
Seed Corn (Maize)	17	„
Peas and beans	45	„
Selected cotton seed	2,224	„
Pine Apple Slips	135	

VEGETABLE NURSERY.

In connection with the development of the vegetable industry a small nursery was established at the experiment station for the purpose of supplying vegetable seedlings to growers.

The seeds were germinated in the nursery and the seedlings supplied to growers at a price just sufficient to cover cost. The following is a list of the seedlings distributed:—

Tomato (Marglobe)	161,900
Egg-plants.....	700
Onion.....	146,600
Cabbage.....	1,830
Sweet Peppers.....	100

DEMONSTRATION PLOT.

For reasons of economy the demonstration plot was discontinued as from March 31st, 1932.

COTTON SELECTION.

Work on cotton selection was continued on the same lines as in previous years.

WORK IN CONNECTION WITH INSECT AND FUNGUS PESTS AND DISEASES AND THEIR CONTROL.

SUGAR CANE.

Mosaic Disease. No trace of this disease was observed during the year.

Gumming disease. This disease occurs more generally than in the past, and efforts are being made to replace the more susceptible varieties with resistant ones.

Moth Borer. This is the most serious pest of the sugar cane in Nevis.

COTTON.

The cotton leaf worm (*Alabama argillacea*) did very little damage to the crop this season, and most fields were not attacked.

Pink boll worm. Severe damage was done to the 1931-32 crop by this pest. The attack started early in the season and continued right through.

Cotton Stainer. This pest is on the increase and was fairly plentiful towards the end of the picking season.

The cleaning up of the cotton fields was more satisfactory than it was last season, and fumigation of cotton seed at the ginnery was carried out in accordance with Regulations.

VEGETABLES.

Green Bug. The damage done to the vegetable crops by this pest was very slight this season.

Prodenia and *Protoparce* were hardly seen this season, and it is observed that they appear to follow dry spells.

Scarabee (*Cryptohynchus batatae*) damaged the sweet potato crop, but not to so great an extent as it did last season.

Slugs. This pest is becoming very troublesome, and did a great deal of damage to ground provisions and vegetables.

INSECTICIDES.

A supply of Paris Green and lime was in stock at the experiment station as in the past. Paris Green and lime was supplied to 43 growers and the total quantity of Paris Green sold was 102 lb. and 2 bags of lime.

Disinfection and Fumigation of Plants and Seeds. In accordance with the provisions of the plant protection Ordinance 8 consignments of plants and seeds were received at the experiment station for fumigation or disinfection.

PROGRESS OF CHIEF INDUSTRIES.

COTTON.

The 1931–32 cotton crop was all reaped by the end of May 1932, and the total production was 23,737 lb. lint from about 250 acres, being at the rate of about 95 lb. lint per acre.

Less interest is shown in cotton, and the acreage planted during the season under report was about 200 acres. The crop was planted during the early part of October, 1932, but excessive rains interfered with the germination and proper handling of the crop. Some plots were abandoned, and generally the crop made slow growth. Later conditions improved and the greater part of the crop promised to give fair returns, but this promise was soon dispelled by the early appearance of the pink boll worm and the cotton stainer. There were only slight attacks by the leaf worm this season.

SUGAR CANE.

There are indications of the restoration of the sugar cane industry. A larger acreage than had been planted for some years has been put under cane cultivation, and there is the prospect of the Basseterre Factory purchasing canes in Nevis.

The muscovado mills in the island have all been working during the year and about 200 tons of muscovado sugar were made. The sugar was practically all absorbed by the local market. The greater part of the crop on the Windward part of the island was shipped to the Basseterre Factory.

The acreage under canes for the 1933 crop is about 900 acres and the crop on the whole is very promising.

COCONUTS.

The coconut plantations of the island continue promising, and were not atacked by any serious pests or disease during the year. At Pinneys the greater part of the crop is made into sun-dried copra.

LIVE STOCK.

With the exception of horses, there is marked improvement in the quality of live stock now raised on the island.

The two Government owned Pure-bred Zebu Bulls continue in good health and condition, and are doing good service.

The Black Head Persian Ram served in most of the flocks during the year and there are now some very fine half-bred animals about the island.

GROUND PROVISIONS.

The usual ground provisions were planted during the year and the crops all gave good returns. The sweet potato crop however was severely attacked by the "Scarabee."

There was an increase in the acreage planted in vegetables for the Canadian market, and the tomato crop in particular is very promising.

VEGETABLE BUREAU.

The Government central packing house was opened for operations on December 28th 1931, and the first shipment of vegetables was made on December 31st and the last on March 23rd 1932.

The cold storage chambers have proved of great benefit to the growers in as much as it permitted an almost continuous receiving and packing of vegetables, thus eliminating loss of produce which would otherwise have occurred between shipments. The acreage planted in vegetables during the season under report was about 12 acres, and while the yields obtained at most places were less than they were last season, yet on account of cold storage facilities on the island, it was possible to market a greater proportion of the crop.

The total quantity of vegetables shipped from the packing house was as follows:—

Tomatoes No. 1	1,102	crates	22,040 lb.
Tomatoes No. 2	79	„	1,580 „
Egg-plants	28	„	845 „
String Beans	32	„	480 „
Sweet Peppers	8	„	62 „
Sweet Potatoes	16	„	768 „

The following is a detailed account of the various produce handled at the packing house:—

TOMATOES NO. 1.

The total quantity of tomatoes received at the packing house was 32,565 lb. After sorting and grading, the total quantity of shippable fruits amounted to 22,698 lb., and rejects 9,876 lb. The rejects amounted to 30.2% of the tomatoes sent to the house but the percentage of rejects could be considerably reduced if greater care was taken in the general handling of the fruits. A preliminary sorting is carried out by most of the growers, and there has been great improvement in this direction, and generally there would have been a small percentage of rejects but for injuries such as finger nail cuts, squeezed and bruised fruits from using too large a container in transporting the fruit to the packing house, and punctures from coarse and hard grass being put in the boxes or baskets with the tomatoes. The growers attention has been drawn to these matters.

All the tomatoes and other vegetables handled at the packing house were shipped to Messrs. Mutual Brokers, Montreal, Ltd.

The total quantity of tomatoes shipped was 22,040 lb., the gross receipts amounted to $1,098.05, and the total expenses amounted to $980.93, leaving $117.12 nett to the growers being at the rate of .5 ct. per lb.

An advance at the rate of 2 cts. per lb. on shippable tomatoes was made by the Government to Growers, and a bonus amounting to $106.56 was paid on the first shipment which was the only shipment that showed a profit. A refund at the rate of 1.5 ct. per lb on the tomatoes shipped is therefore due by growers to the Government.

The following shows the total results of the shipments:—

Expenses in Nevis	$ 514.44	2.3	cts. per lb.
Expenses in Canada	466.49	2.1	„ „ „
Total expenses	980.93	4.4	„ „ „
Gross Receipts	1098.05	4.9	„ „ „
Nett to Growers	117.12	.5	„ „ „
Bonus on 1st. shpmt	106.56	4.0	„ „ „
Advance to Growers	453.96	2.0	„ „ „
Total deficit on No 1	443.40	1.9	„ „ „

EGG-PLANTS.

The egg-plants sent into the packing house were not of as good a quality as those handled last season. They were mostly on the small side and a large percentage of them were over-ripe.

The egg-plants were first sorted and only the shippable fruits accounted for. The total quantity shipped was 845 lbs. and the following shows the results:—

Expenses in Nevis	$17.11	2.0	cents per lb
Expenses in Canada	11.42	1.3	„ „ „
Total expenses	28.53	3.3	„ „ „
Gross Receipts	37.55	4.4	„ „ „
Nett. to Growers	9.02	1.0	„ „ „

TOMATOES NO. 2. (Seconds)

These shipments were made up of tomatoes which were not quite up to the standard of No. 1's, but were otherwise marketable. They were shipped in crates marked "Seconds" and invoiced separately. The total quantity shipped was 1,580 lb. and the nett proceeds were used to reduce general expenses. The following shows the results:—

Expenses in Nevis	$35.36	2.2 cents per lb
Expenses in Canada	30.49	1.9 „ „ „
Total expenses	65.85	4.1 „ „ „
Gross Receipts	81.20	5.1 „ „ „
Nett. to Growers	15.35	.9 „ „ „

STRING BEANS.

The results obtained from the string beans have not been very encouraging. The beans were of very good quality, but they did not seem to carry well, and arrived on the market in an almost unsaleable condition.

The total quantity shipped was 480 lbs. and the following shows the results:—

Expenses in Nevis	$15.71	3.2 cts. per lb.
Expenses in Canada	9.95	2.0 „ „ „
Total expenses	25.66	5.2 „ „ „
Gross Receipts	28.05	5.8 „ „ „
Nett. to Growers	2.39	.5 „ „ „

SWEET PEPPERS.

Satisfactory results were obtained from this commodity, and is a line which perhaps can further be developed. The total quantity shipped was 62 lb., and the following shows the results:—

Expenses in Nevis	$ 2.88	4.6 cts. per lb.
Expenses in Canada	4.26	6.8 „ „ „
Total expenses	7.14	11.4 „ „ „
Gross Receipts	11.25	18.0 „ „ „
Nett. to Growers	4.11	6.6 „ „ „

SWEET POTATOES.

These shipments were made up of potatoes of the "Yellow Jersey" variety. The results however were not very good, and the potatoes were reported to be on the small side for the best market results. The "Yellow Jersey" does not generally produce a large potato here on the island, and perhaps better prices might be obtained for some of our best varieties.

The total quantity shipped was 768 lbs. and the following shows the results:—

Expenses in Nevis	$ 8.42	1.0 ct. per lb.
Expenses in Canada	8.75	1.1 „ „ „
Total expenses	17.17	2.1 „ „ „
Gross Receipts	15.20	1.9 „ „ „
Loss	1.97	.2 „ „ „

On the whole the results from the different commodities shipped have not been very encouraging, and it is doubtful whether much progress in the vegetable industry will be made unless market conditions improve.

The following statement shows the total Receipts and Expenditure for the season:—

	Receipts	Expenditure
Gross Proceeds Tomatoes, No. 1	$1,098.05	
Grs. Proceeds Egg-plants	37.55	
Grs. Proceeds String Beans	28.05	
Grs. Proceeds Sweet Peppers	11.25	
Grs. Proceeds. Tomatoes No. 2	81.20	
Grs. Proceeds Sweet Potatoes	15.20	
Total Exchange	122.53	
Crates		209.44
Wraps		59.60
Liners		8.05
Labels		27.78
Nails		10.18
Packing House expenses		110.96
Shipping expenses		27.40
Rent of Packing House		50.60
Cold Storage Nevis		6.77
Freight on 1st shipment		48.77
Overtime to Officers		25.56
Telegrams		8.57
Pier dues on potatoes		.24
Advance on No. 1 Tomatoes		453.96
Bonus on 1st shipment tomatoes		106.56
Nett proceeds paid on egg-plants, &c.		30.87
Sundry supplies		10.38
Total expenses in Canada		531.36
Total deficit	333.22	
	$1,727.05	$1,727.05

PURCHASING OF PEASANTS' COTTON AND GOVERNMENT GINNERY.

Purchasing of the peasants' cotton was undertaken by the Government again this year on the same lines as it was carried out last season. An advance at the rate of 3 cents per lb. was paid on clean Sea Island cotton delivered at the cotton house. Purchasing was done at the Vegetable packing house, and the cotton was ginned at the Government Ginnery under the supervision of the Agricultural Instructor.

The total quantity of seed cotton purchased was 32,307 lb., and the lint obtained from it was 8,696 lb. which was shipped to the British Cotton Growing Association on July 4th, 1932, in 18 bales. The cotton seed was sold to Spooners Factory, St. Kitts, except a supply of the best which was hand selected and sold to growers to plant the 1932-33 crop. An early sale of the cotton shipped was effected at a price which allowed a bonus of 1.4 cents per lb. to the peasants after deducting expenses. The total cost of the undertaking was £289 15. 6., and the receipts from the sale of cotton and cotton seed was £388 14. 11. leaving a profit of £98 19. 5. to be divided between the peasants at the rate of 1.47 cents per lb. on seed cotton.

The Government ginnery started operations on June 1st, 1932, and the total quantity of lint ginned and baled was as follows:—

Peasants crop ..	18 bales	8696 lb. nett.
Planters crop ..	2 „	1041 „ „
	20	9,737

LAND SETTLEMENT.

Some progress has been made on the Low Ground Settlement, but results are not yet satisfactory. Of the 69 holdings only 26 have been taken, and it is hoped that with the prospect of canes being purchased in Nevis, many more plots will be taken during the coming year.

The peasants who have taken plots are working fairly well, and there are about 40 acres under cultivation in crops such as Sugar cane, Cotton and Ground Provisions. Planting material is supplied free to the peasants from the experiment station and the following is a list of the plants, seedlings &c. distributed.

Tomato seedlings	21,700
Onion seedlings	4,500
Cabbage „	120
Cane Plants (B.H.10(12)	49,950
Cassava cuttings	400
Gliricidia plants	660
Pine Apple slips	94
Grafted Mango	2
Budded Orange	2
Avocado Pear	2
Cotton Seed .lbs.	10
Peans and Beans, lbs.	3

AGRICULTURAL EDUCATION.

At nearly all the schools an attempt is made to carry on a school garden, but generally there is much room for improvement in this line of work.

AGRICULTURAL MATTERS.

The usual correspondence in connection with the work of the department has been carried on.

The Agricultural Instructor pays regular visits to the estates and peasants plots in the different parts of the island, and generally is in close touch with matters of general agricultural interest to the island.

The Agricultural and Commercial Society, of which the Agricultural Instructor is Honorary Secretary, held four meetings during the year and the following were the chief matters discussed :—Barbados Cotton Conference; Local Cotton Growers Association; Close Season for Cotton.

OFFICIAL VISITS.

Visits were paid to the Station by Mr. G. A. Jones, the Assistant Commissioner of Agriculture for the West Indies, Mr. A. C. Shill, the Marketing Officer, Mr. R. E. Kelsick, the Agricultural Superintendent, and Mr. G. B. Gregory, the Assistant Agricultural Superintendent.

PUBLICATIONS RECEIVED.

The following publications have been regularly received and are hereby gratefully acknowledged:—The Journal of the Imperial College of Tropical Agriculture; Journal of Agricultural Research, and the Experiment Station

Record; United States Department of Agriculture; Journal of the Empire Cotton Growing Corporation; Journal of the Agricultural Society, Jamaica; Report of the Local Department of Agriculture, Barbados; Report of the Experiment Station, Porto Rico; Report of the Agricultural Department, and the Agricultural Bulletin, Bermuda; Climatological Report, San Juan, Porto Rico.

REPAIRS TO BUILDINGS.

Slight repairs were done to the office at the experiment station during the year under report.

STAFF CHANGE.

There was no change of staff during the year.

METEOROLOGICAL RETURNS.

The total rainfall for the year was 67.65 inches which is 19.65 inches more than that of 1931.

Rain fell on 130 days during the year and the heaviest fall recorded for any one day was 5.20 which occurred on May 9th 1932.

The following tables show the monthly rainfall at the Experiment Station for the period under report and also that for the past twenty-seven years 1906-1932.

Month 1932	Rainfall Inches	No. of days on which rain fell	Maximum fall for any one day
January	9.11	11	3.65 (9th.)
February	1.85	8	.56 (2nd.)
March	1.83	8	.61 (29th.)
April	1.92	8	.83 (25th.)
May	6.88	9	5.20 (9th.)
June	4.28	10	.76 (17th.)
July	5.98	14	1.53 (27th.)
August	8.70	16	1.56 (31st.)
September	3.28	8	1.45 (26th.)
October	8.70	11	4.30 (31st.)
November	8.74	12	2.92 (14th.)
December	6.38	15	1.17 (24th.)
	67.65	130	

TEMPERATURE.

Readings of the Maximum and Minimum and the Wet and Dry bulb thermometers are taken daily at the station at 9 a.m. and 3 p.m.

The mean maximum temperature for the year was 85.1°F, and the mean minimum 75.1°F. The highest maximum for the year was 90°F. registered on August 15th and 22nd and the lowest minimum 62°F. on February 25th.

The mean average temperature for the year was 81.2°F.

RAINFALL AT THE EXPERIMENT STATION, NEVIS, FOR THE PAST TWENTY-SEVEN YEARS 1906—1932.

	Jan. Ins.	Feb. Ins.	Mar. Ins.	April Ins.	May Ins.	June. Ins.	July. Ins	Aug. Ins.	Sept. Ins.	Oct. Ins.	Nov. Ins.	Dec Ins.	Total. Ins.
1906	3·28	2·22	1·71	2·19	3·49	7·30	4·11	2·94	18·93	3·10	3·42	6·67	60·11
1907	3·22	2·32	1·23	1·08	3·30	4·12	4·86	2·64	3·76	6·92	2·54	7·46	43·45
1908	2·58	1·70	7·16	2·18	4·24	2·83	3·34	5·02	6·98	1·44	6·93	6·10	50·50
1909	3·86	3·46	0·96	2·72	1·62	9·52	4·52	8·71	3·46	7·28	2·44	2·74	50·69
1910	5·24	3·82	1·33	0·44	1·08	4·24	2·80	7·10	7·00	1·86	3·32	4·68	41·91
1911	6·38	2·78	2·32	4·02	4·08	0·92	2·72	2·34	5·30	3·58	2·80	8·84	46·08
1912	3·84	0·68	2·66	4·20	0·79	2·51	3·56	3·46	3·19	5·25	6·43	2·85	39·42
1913	7·18	1·96	4·14	0·81	4·47	2·23	1·77	4·92	3·59	3·89	4·41	3·36	42·64
1914	3·40	2·74	3·10	2·52	6·29	2·65	5·16	4·72	2·20	4·17	12·44	4·16	53·55
1915	4·40	2·03	0·28	5·65	2·79	2·52	8·14	4.34	4·71	5·88	5·37	5·89	52·10
1916	4·53	3·99	2·19	0·75	3·82	2·07	14·54	7·81	2·00	10·86	6·74	1·74	64·04
1917	1·39	3·28	2·57	1·00	4·27	6·73	3·46	4·02	8·18	5·00	2·11	2 09	44·10
1918	2·18	3·27	2·75	2·59	6·14	2·02	4·08	5·12	6 21	6·36	10·98	2·28	53·98
1919	2·22	1·16	1·33	2·79	2·10	2·29	4·92	1·66	2·10	8·41	7·22	2·89	38·22
1920	3·71	2·86	1·25	0·02	1·22	2·22	1·79	4·61	6·05	6·76	3·30	4·39	38·18
1921	5·84	2·79	3·86	1·40	0·82	0·80	4·94	6·58	4·20	7·34	3·66	3·95	46·18
1922	1·75	1·80	4·71	3·33	1·95	3·09	4·05	3·88	6·84	4·27	2·14	5·81	43·62
1923	1·51	2·41	5·42	2·04	0·45	5·62	1·85	2·63	1·16	5·28	4·23	3·16	32·74
1924	2·46	3·29	0·05	2·49	1·58	2·48	4·50	24·35	4·05	5·11	3·57	4·71	58·64
1925	2·65	0·99	1·49	1·06	1·64	1·92	3·53	4·81	4·12	6 94	2·74	0·31	32·20
1926	2·08	1·97	1·78	3·42	11·77	2·92	3·89	4·94	6·24	7·15	3·62	6·59	56·37
1927	4·14	1·46	4·01	2·79	9·32	2·60	6·52	3·48	4·48	10·05	5·69	1·22	56·06
1928	2·87	2·10	3·21	3·78	1·31	3·96	4·06	2·59	1·98	5·84	4·07	4·37	40·17
1929	3·92	2·52	5·38	2·12	3·10	2·58	6·95	5·21	2·69	3·45	5·07	5·57	48·56
1930	9·05	0·63	0·34	1·73	1·66	2·83	2·53	2·06	3·28	2·21	7·51	2·71	36·56
1931	1·00	1·47	0·37	4·00	2·13	3·29	5·68	6·59	6·94	5·90	6·83	3·89	48·00
1932	9·11	1·85	1·83	1·92	6·88	4·28	5·98	8·70	3·28	8·70	8·74	6·38	67·65

The average rainfall for the last twenty-seven years was **47.61 inches.**
Rainfall during hurricane of Sept. 21st. 1928 not available.

Report of the Agricultural Instructor, Anguilla.

For the Period 1st January to 31st December, 1932.

WEATHER CONDITIONS.

The total rainfall for the year 1932 was 47.88 inches which is 3.41 inches more than that of last year. Rain fell on 87 days during the year and the highest fall recorded for any one day was 4.60 inches on the 8th May.

The rainfall recorded at Wall Blake estate for the same period was 56.32 inches and at East End school 50.39 inches.

A rain gauge has recently been placed at South Hill school. A gauge is now required at a station at the Western end of the island. This would enable the average rainfall of the island to be determined fairly accurately.

The following table shows the monthly rainfall at the Demonstration Plot for the year under report.

Month.	Rainfall.	No. of days	Maximum Fall.	Date.
January ..	3.07 ins.	7 days	0.75 ins.	3rd
February ..	1.64	6	0.53	11th
March	1.00	5	0.20	2nd
April	4.26	7	2.20	7th
May	11.68	5	4.60	8th
June	3.72	6	1.28	12th
July	2.08	4	1.05	24th
August ..	5.77	9	1.00	30th
September ..	1.97	4	0.80	26th
October ..	5.21	12	1.55	7th
November ..	4.90	9	2.21	13th
December ..	2.58	13	.30	15th
Total ..	47.88	87	..	..

THE DEMONSTRATION PLOT.

During the visit of the Assistant Commissioner of Agriculture and the Agricultural Superintendent in February, it was decided to grow the following crops on the demonstration plot.

Plot	A	.. ..	Green Dressing.
„	B	.. ..	Cassava.
„	C	.. ..	Guinea Corn.
„	D	.. ..	Vegetables and Irish Potatoes.
„	E	.. ..	Cotton.
„	F	.. ..	Aloes and Pineapples.
„	G	.. ..	Vegetables.
„	H	.. ..	Irish Potatoes.
„	I	.. ..	Yams and Tannias.
„	J	.. ..	Fodder grasses.

PLOT A.

Cassava was planted and reaped and a green dressing planted. Four new varieties of sweet potatoes received from St. Kitts have been planted in the furrows, the green dressing being turned in under the banks. The expenses to 31st December amount to 10/10.

PLOT B.

After Irish Potatoes—Bliss Triumph—had been reaped Cassava was planted in the month of May. The plants have grown well and the yield should be good. Expenses to 31st December 9/6.

PLOT C.

After sweet potatoes had been reaped guinea corn was planted. The grain was very badly damaged by sparrows. The Mazzagua variety was introduced from St. Kitts. The plants grew very tall and produced large ears. This crop was also damaged by birds but seed has been saved for planting. Expenses to 31st December 7/8.

PLOT D.

Sweet potatoes were reaped and the land manured and cultivated for vegetables and Irish Potatoes. The seed potatoes—Irish Cobbler—arrived very late in November and are not doing well. The vegetable crop is very promising. Expenses to 31st December £1 0. 0.

PLOT E.

Black eye peas were reaped and distributed and cotton planted on August 27th. The seeds did not germinate well. A fresh supply was obtained and the plot supplied. Expenses to 31st December 10/-.

PLOT F.

One half of the plot was planted in Aloes on the 20th May and the other half reserved for pineapples. The supply of pineapple suckers was not sufficient. The Aloes are growing well but the pineapples have failed.

PLOT G.

Jamaica corn was reaped from this plot. The plants grew very tall, some being 10 feet in height. The ears did not grain well and the results were disappointing.

The land was manured and prepared for vegetables. Tomatoes were slipped from nursery boxes to beds on 1st October, Onions were planted on November 12th. Yams and tannias were also reaped from this plot and yielded at the rate of 7 tons per acre. Expenses to December 31st £2. 7. 10.

PLOT H.

This plot was manured and prepared for Irish Potatoes. Corn had been previously reaped. Seed potatoes arrived much too late and were planted on November 26th. The plants are not growing well. Expenses to 31st December £1. 7. 11.

PLOT I.

This plot was planted in yams and tannias in the month of May. The growth is excellent and the results should be satisfactory. Expenses to 31st December £1. 12. 9.

PLOT J.

Planted in Elephant Grass and Guinea Corn on 24th June. Expenses 9/6.

DISEASES AND INSECT PESTS.

VEGETABLES AND GROUND PROVISIONS.

Sweet Potatoes. The Scarabee, *Crypterhynchus batatae,* was very prevalent this year and caused considerable damage to the crop. Specimens of this pest were forwarded to Professor Ballou on his request for identification.

Yams. In one district, West End, the yam scale, *Aspidiotus hartii,* was observed.

Guinea Corn. This crop was badly damaged by birds and little or no grain was saved. The attacks took place before the crop was ready for harvesting.

Tomatoes. There was an attack of *Phytophthora* which damaged the fruit in the early stage. At the time of writing the disease appears to be on the decrease.

Egg Plants. These were attacked by mealy bugs at the end of the crop.

Cabbage. A few crickets appeared again this season but were easily controlled. They disappeared after the first few days hand picking.

Cotton. The leaf eating caterpillar did no damage this year and only a few beetles and cut worms were seen. The Pink Bollworm was observed late in December.

PLANT DISTRIBUTION.

The following is a list of planting material distributed to the peasants:

Sweet Potato cuttings	2000	
Onion	950	seedlings
Cabbage	100	,,
Egg Plant	48	,,
Tomato	84	,,
Yam	600	lb.
Tannia	120	,,
Blackeye Peas	24	,,
Corn	60	,,
Elephant Grass	5000	cuttings
Cassava	210	,,
Sugar Cane	400	,,

Vegetable seeds were also sold to the peasants.

THE COTTON INDUSTRY.

The 1931-32 crop yielded 26,000 lb. lint, which was 6,244 lb. less than that of the previous year. The Pink Bollworm was very prevalent and caused great damage to the crop. A meeting of the Cotton Advisory Board was summoned on the 23rd March and the close season was fixed for the 16th April to the 15th August.

Planting for the 1932-33 crop was started on the 17th August. Owing to the many off type plants observed in the island the Committee decided that no cotton seed from Anguilla should be used for planting this season. Seed was obtained from St. Kitts but at the time when the seed was required only seed from the crop which was reaped in August 1931 was available and the germination was poor. Fresh seed from the 1932 crop was obtained and grew well.

The multiplication plot was replanted on the 19th September and the plants are quite uniform. The area was cultivated and manured by Mr. Carter Rey.

The rainfall during the cotton growing season is given below:

September	1.97	inches
October	5.21	,,
November	4.90	,,
December	2.58	,,
January	1.67	,,
February	0.92	,,
	17.25	inches

The crop is estimated at 65 bales of 250 lb. lint.

AGRICULTURAL EDUCATION.

All the schools have small gardens. Box culture is demonstrated at the South Hill School. The teachers find it very difficult to keep seedlings alive as there is no means of watering them.

The children were shown around the demonstration plot and the Agricultural Instructor demonstrated to them the method of cultivation and planting of Irish Potatoes, vegetables and other crops and gave a lecture on rotation of crops.

LIVE STOCK.

The live stock of the island have improved. A better water supply is now available since the pumping plant was erected at the Valley Well.

The Government purchased a pure bred Berkshire Boar from the Government Farm at Trinidad for the improvement of the pigs on the island, and Mr. Carter Rey obtained from the same place a pure bred Holstein bull and two half bred Holstein heifers.

LAND SETTLEMENT SCHEME.

This scheme has progressed satisfactorily. At the Cove and Rendezvous Estates 566 acres have been taken up by peasants who have all paid their first year instalments. These estates were surveyed by Mr. Walker, Survey Engineer from St. Kitts, and the holdings consist of 10 acre blocks. Concrete blocks mark the boundary lines of each allotment. There is still a portion of land not yet divided up. The mahogany trees, coconut trees and the sea front have been reserved by the Government and the road leading to and from the sea.

OFFICIAL VISITS.

His Excellency the Governor, Sir Reginald St. Johnston, K.C.M.G., and Lady St. Johnston visited the Demonstration Plot in January. The Admiral and six officers from the H.M.S. Dorsetshire also visited the plot. His Honour the Administrator; Mr. G. A. Jones, Assistant Commissioner of Agriculture; the Honourable G. C. Johnson, Treasurer, and Mr. R. E. Kelsick, Agricultural Superintendent, visited the plot in February. Dr. MacFadyen, Magistrate, visited the plot several times during the year.

During his visit to the Island Mr. Jones addressed a meeting of peasants at the Court House.

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